IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF VIRGINIA
Alexandria Division

TOMTOM, INC.,	)	
Plaintiff/Counter-Defendant,	)	
	)	
v.	)	**Case No. 1:12-cv-528**
	)	
MICHAEL ADOLPH,	)	
Defendant/Counter-Plaintiff.	)	
	)	

MEMORANDUM OPINION

In this patent infringement suit, plaintiff TomTom, Inc., seeks a declaration (i) that TomTom's products do not infringe defendant Dr. Michael Adolph's ("Dr. Adolph") U.S. Patent No. 6,356,836 ("the '836 patent") or, in the alternative, (ii) that the claims of the '836 patent are invalid. Dr. Adolph opposes TomTom, Inc.'s request for a declaration of non-infringement or invalidity and counterclaims for infringement and willful infringement of the '836 patent against TomTom, Inc., TomTom International B.V., and TomTom North America, Inc. ("TomTom"). The parties filed cross-motions for summary judgment, with TomTom seeking summary judgment of non-infringement and Dr. Adolph seeking partial summary judgment for the purpose of narrowing the scope of issues to be tried to a jury. The motions were fully briefed, argued, and taken under advisement by Order dated October 30, 2015.

For the reasons that follow, Dr. Adolph has not produced evidence sufficient to create a triable issue of fact on the question of infringement. Accordingly, TomTom's motion for summary judgment of non-infringement must be granted.

I.

The pertinent background facts of this dispute may be succinctly stated.[1] Plaintiff TomTom is a Massachusetts corporation in the business of selling personal navigation devices. These devices use software that gathers historical travel data for various purposes, such as recommending travel routes. Defendant Dr. Adolph is the named inventor and owner of the '836 patent, which issued in March 2002.[2] According to Dr. Adolph, certain of TomTom's software infringes the '836 patent.

The '836 patent "relates to a method for generating and updating data for use in a destination-tracking system consisting of at least one mobile unit...as well as a device for carrying this out." Col. 1 ll. 7-10. Specifically, the '836 patent consists of one independent claim and fifty-two dependent claims, the object of which is "to establish a method to generate appropriate data utilizable for a practical destination tracking system which carries out a permanent self-updating and with data generation which requires little effort" and "to provide a device for carrying out the method." Col. 3 ll. 38-46. Because Claim 1 is the only independent claim, it is of primary relevance. Claim 1 reads:

> 1. A method for generating and updating data for use in a destination tracking system of at least one mobile unit comprising:
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> generating and storing traveled distance data in at least one storage device provided in said mobile unit at least at predetermined time intervals, wherein the traveled distance data represent traveled sections by at least a series of nodes P_i and to each node P_i geographical coordinates x_i and y_i are assigned;

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[1] A more complete discussion of the parties and the background facts can be found in *TomTom, Inc. v. Adolph*, 790 F.3d 1315, 1317-22 (Fed. Cir. 2015), and *TomTom, Inc. v. Adolph*, 56 F. Supp. 3d 767, 772-75 (E.D. Va. 2014).

[2] The '836 patent has a counterpart in European patent 0 988 508 B1.

> generating and storing section data in the storage device provided in the mobile unit, said section data being generated by selecting, from the traveled distance data, nodes P_j and P_k, which define contiguous sections P_jP_k, to which at least their geographical starting point and end point are assigned; and
>
> generating a section data file from the section data and storing the section data file in the storage device provided in the mobile unit, said section data file being continuously supplemented and/or updated with section data newly generated by the mobile unit.

Col. 17, ll. 35-55.

As a result of a dispute between the parties as to the meaning of certain claim terms and phrases, a *Markman*[3] claim construction hearing was held and a Memorandum Opinion and Order ("*Markman* Order") issued defining the terms and phrases in dispute.[4] Dr. Adolph moved to reconsider the construction of some of the contested terms, and that motion was denied by Order dated April 15, 2014 (Doc. 225). Thereafter, in June 2014, the parties entered into a stipulation of final judgment, by which Dr. Adolph agreed that, in light of the claim construction, entry of final judgment of non-infringement in TomTom's favor was appropriate. Judgment was entered accordingly, and Dr. Adolph filed a timely appeal to the United States Court of Appeals for the Federal Circuit. On appeal, the Federal Circuit revised the construction of certain claims, reversed the entry of judgment for TomTom, and remanded for further proceedings. *See generally TomTom*, 790 F.3d 1315.

TomTom's present motion for summary judgment raises two issues. First, the Federal Circuit has construed the '836 patent's preamble as containing a limitation that the method is for use in a destination tracking system that does not "require initial information relating to existing

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[3] *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996) ("the construction of a patent...is exclusively within the province of the court").

[4] *See generally TomTom*, 56 F. Supp. 3d 767; *TomTom, Inc. v. Adolph*, No. 12-528 (E.D. Va. Feb. 25, 2014) (Order) (Doc. 199).

road networks." *TomTom*, 790 F.3d at 1325. In TomTom's view, its devices do not satisfy this limitation because the undisputed record facts show that TomTom's devices cannot operate without a valid map file. Second, TomTom argues that Dr. Adolph cannot produce record evidence sufficient to show that TomTom performs the second step of Claim 1 of the '836 patent. As the Federal Circuit has explained, "[t]o infringe a method claim, a person must have practiced all steps of the claimed method." *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1317 (Fed. Cir. 2009). Thus, if Dr. Adolph cannot prove that TomTom has performed the second step of Claim 1 of the patented method, then TomTom does not infringe the '836 patent. Each argument is addressed in turn.

II.

The first limitation in Claim 1 is found in the preamble. Specifically, Claim 1 explains that the claimed method is intended "for use in a destination tracking system of at least one mobile unit." At a prior stage of this litigation, the Federal Circuit construed the phrase "destination tracking system of at least one mobile unit" to mean "a destination tracking system of at least one mobile unit that does not *require initial information relating to existing road networks.*" *TomTom*, 790 F.3d at 1325 (Federal Circuit's emphasis). This construction does not fully resolve the parties' dispute on this issue. In essence, the parties now contest whether infringement of the '836 patent requires that the method be performed in a destination tracking system that does not presently require initial information relating to existing road networks (*i.e.*, a map) or whether the preamble merely represents a requirement that the method be capable of performing in such an environment.

In TomTom's view, the fact that its navigation devices are incapable of operation without a valid map file means that its devices "require initial information relating to existing road

networks." Accordingly, TomTom contends that it is entitled to summary judgment because Dr. Adolph does not contest that the record contains no facts suggesting that the claimed method has ever been performed by TomTom in a destination tracking system that does not require an initial map. Dr. Adolph, in response, argues that TomTom's destination tracking *software*, which is the source of the alleged infringement, is capable of performing the claimed method without a map. In other words, TomTom argues that any destination tracking system that is not presently configured to operate without an initial map "requires" an initial map and fails to satisfy the preamble's limitation, whereas Dr. Adolph argues that infringement is established so long as the allegedly infringing software does not *necessarily* require a destination tracking system with an initial map in order to perform the claimed method.

To resolve this dispute, analysis properly begins by considering the Federal Circuit's claim construction of the preamble. As the Federal Circuit noted, the limitation in the preamble finds its source in certain disclaimers that Dr. Adolph made for the purpose of distinguishing his invention from prior art, namely U.S. Patent No. 4,982,332 (filed Mar. 29, 1989) ("Saito patent"). To distinguish his invention from the Saito patent, Dr. Adolph noted, *inter alia*, that "[t]he present invention allows even a single mobile unit to commence generating and storing data *without the need for* any initial information relating to existing road networks." *TomTom*, 790 F.3d at 1325 (citing the prosecution history) (Federal Circuit's emphasis). The Saito patent, which also claims a method for generating road data, requires initial information relating to existing road networks *as part of the claimed method.* To illustrate, the first step of the Saito patent's Claim 1 requires "previously expressing points on roads in a map in numerical form and memorizing them as map data." U.S. Patent No. 4,982,332 col. 5, ll. 39-40. In contrast, the '836 patent allows for the collection and generation of road data by use of the claimed method without

any such initial map data. Simply put, one aspect separating the Saito patent's claimed method from the '836 patent's claimed method is that although the Saito patent's claimed method can *never* be performed without an initial map, initial map data is not categorically necessary to the performance of the '836 patent's claimed method.

As the Federal Circuit previously stated, it is important to focus sharply on the operative disclaimer language when construing the scope of the preamble's language. Although the '836 patent's preamble explains that the claimed method is designed "for use in a destination tracking system," the "for use in" portion of the preamble has not been construed as a limitation. To the contrary, the Federal Circuit plainly held that the preamble's phrase "generating and updating data for use in" is *not* a claim limitation. *TomTom*, 790 F.3d at 1324. Instead, the generating phrase "is language stating a purpose or intended use." *Id.* The relevant disclaimer language, moreover, states only that the method "allows" data generation and storage without the need for an initial map and that such generation and storage "can" be performed without an initial map. *See id.* at 1325. In other words, the '836 patent's claimed method is not limited to use in a destination tracking system that does not require an initial map; rather, the preamble language informs that the method must be *capable* of performance within a destination tracking system that does not require an initial map. Thus, the relevant preamble language is not a limitation with respect to the environment in which the method *is* performed but on the environment in which the method *can* be performed.

Given this reading of the preamble, TomTom's non-infringement argument fails on this ground. The basis for TomTom's argument is that its navigation devices, as the record reflects, require—and at all relevant times have required—a valid map file. Without such a map file, TomTom's devices are incapable of performing any function, including trip data generation and

storage. As Dr. Adolph notes, however, the allegedly infringing activity occurs exclusively through the operation of TomTom's location tracking software, and the location tracking software operates independently of the map,[5] such that the TomTom software *can* be used in a destination tracking system that does not require a map. Thus, TomTom's destination tracking software is not necessarily limited to performing the claimed method in a destination tracking system that requires an initial map.

TomTom seeks to avoid this conclusion by arguing that, based on Federal Circuit precedent, theoretical capability is insufficient to prove infringement. First, TomTom cites *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1206 (Fed. Cir. 2010), for the proposition that Dr. Adolph must show actual evidence that TomTom devices work without an initial map and that TomTom devices are used in such a manner. As relevant here, *i.e.*, with respect to method claims, the Federal Circuit in *Finjan* merely concluded that the plaintiff in that suit failed to put forward sufficient evidence from which a jury could reasonably infer infringement because the evidence reflected only that the allegedly infringing activity occurred, at most, on one occasion in a foreign country, thereby placing the activity beyond the scope of 35 U.S.C. § 271(a), which limits infringement to activities occurring "within the United States." *See id.* As such, *Finjan* does not speak to the instant dispute. To the extent that *Finjan* might support the proposition that a party alleging infringement of a claimed method must prove performance in the claimed environment, the foregoing analysis of the scope of the '836 patent's preamble limitation explains that, with respect to the '836 patent specifically, the limitation does not necessarily limit performance of the method to one particular technological environment. Accordingly, *Finjan* does not alter the outcome reached here.

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[5] *See, e.g.*, Schilling Dep. at 44:4-24; 68:3-13; 71:1-2.

Second, TomTom relies on *Nazomi Commc'ns, Inc. v. Nokia Corp.*, in which the Federal Circuit rejected the argument that "devices infringe if they 'have the capability of being *configured or programmed* to perform the stated function,' even though the accused devices were not structured to perform that stated function as sold." 739 F.3d 1339, 1346 (Fed. Cir. 2014) (quoting *Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1380 (Fed. Cir. 2011)). *Nazomi* reaffirms the principle that, as to apparatus claims, infringement occurs if a product allows a user to utilize a claimed function without having to modify the product. *Id.* at 1345. Thus, in TomTom's view, *Nazomi* stands for the proposition that if a TomTom device cannot perform the claimed method without modification of the destination tracking system (as by reprogramming the device so as not to require a valid map file), then TomTom devices do not infringe. *Nazomi*, however, is readily distinguishable because that case addresses non-method claims. To be sure, a "destination tracking system" is an apparatus. But, as explained *supra*, the '836 patent, understood in light of the specific facts and circumstances of the prosecution history, claims a method that *can* be performed on a destination tracking system that does not require an initial map rather than a method that *must* be performed on a destination tracking system so configured. Because TomTom's software can operate independently of TomTom's map file, the limitation is satisfied.

In sum, the Federal Circuit made it quite clear that the scope of the limitation in the preamble must be defined by careful reference to Dr. Adolph's representations when distinguishing his invention from the Saito patent. *See TomTom*, 790 F.3d at 1325. When the specific facts of this portion of the prosecution history are parsed, it becomes apparent that the Saito patent's claimed method *necessarily requires* initial road network information. Therefore, Dr. Adolph's disclaimer is properly understood as acknowledging that his method can be

performed in a destination tracking system that, unlike the Saito patent's claimed method, does not require initial road network information. The authorities on which TomTom relies in opposition to this conclusion are distinguishable and do not compel the conclusion that TomTom devices only infringe if they are presently configured to operate without an initial map. Thus, TomTom's argument for summary judgment of non-infringement on this ground fails.

III.

TomTom's second argument for summary judgment of non-infringement focuses on the second step of Claim 1. Specifically, TomTom argues that its devices do not "select" and "drop" nodes as required by the second step of Claim 1 as construed in the *Markman* Order and in the Federal Circuit's previous opinion. Dr. Adolph responds that TomTom does "select" nodes consistent with the claim construction and further "drops" nodes when the location tracking software (i) discards invalid raw data nodes at the beginning of a trip, (ii) stops recording after ten readings in the same location, and (iii) loses a GPS signal.[6]

A.

The first step of the infringement analysis is to ascertain the appropriate construction of the claim language. *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*). In the wake of the Federal Circuit's previous decision altering certain of the claim constructions from the *Markman* Order, Dr. Adolph argues that certain other constructions that were neither appealed to nor addressed by the Federal Circuit must also change. Accordingly, it is appropriate to revisit the contested language.

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[6] *See* Def't Opp. at 26-28; Transcript of Summary Judgment Motion Hearing ("Tr."), at 23, 55-56 (October 30, 2015).

Step two of Claim 1 contains three terms and phrases for which claim construction is necessary: (i) "node," (ii) "section data," and (iii) "selecting, from the traveled distance data, nodes P_j and P_k, which define contiguous sections P_jP_k." The first of these terms and phrases—"node"—is the easiest to address, as the Federal Circuit construed "node" to mean "geographic location." *TomTom*, 790 F.3d at 1327. This settles the issue of the meaning of "node."

The two remaining relevant terms and phrases were construed in the *Markman* Order but were not appealed by Dr. Adolph. At the *Markman* hearing stage, Dr. Adolph did not believe that these phrases required construction, and following the *Markman* Order's issuance Dr. Adolph did not move to reconsider the construction reached.

First, "section data" was construed to mean "data generated from traveled distance data reflecting (a) that travelled nodes P_j and P_k are connected to each other, (b) the direction of travel from P_j to P_k, and (c) the distance traveled from P_j to P_k." *See TomTom*, 56 F. Supp. 3d at 783. This construction is rooted in Dr. Adolph's representations in the prosecution history, in which Dr. Adolph sought to distinguish his invention from prior art, specifically the Saito patent.

Second, the process of "selecting, from the traveled distance data, nodes P_j and P_k, which define contiguous sections P_jP_k," was construed to mean "selecting from the traveled distance data, the nodes that are most characteristic of a road segment and dropping the intermediate nodes of that segment, whereby the end of one section is the start of the next section." *See id.* at 783-84. The primary source of this construction is the specification, which teaches that "section data are generated from the traveled distance or route data in the trip storage unit, compressing the traveled distance data by dropping individual points P_i and choosing those points P_j and P_k which are…most characteristic in defining a section of the route." Col. 10, ll. 8-14.

Construction of the "selecting...nodes P_j and P_k" process squarely presents perhaps the best known difficulty in all of claim construction, namely treading the fine line "between using the specification to interpret the meaning of a claim and importing limitations from the specification into the claim." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (*en banc*). To strike the appropriate balance, analysis properly focuses on "whether the specification refers to a limitation only as a party of less than all possible embodiments or whether the specification read as a whole suggests that the very character of the invention requires the limitation be a part of every embodiment." *Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1370 (Fed. Cir. 2003). Importantly, the specification must therefore be read with an eye towards "indicia" of the patentee's intent; if these indicia are present "at various points" throughout the specification, then "it is entirely permissible and proper to limit the claims." *Id.* With this guidance in mind, the analysis properly proceeds to determining whether the construction from the *Markman* Order permissibly read the claim language in light of the specification or impermissibly imported an unnecessary limitation from the specification.

With regard to the "selecting" of "nodes P_j and P_k," the specification explains that "points P_j and P_k" must be "conspicuous." Col. 10, l. 19. To illustrate the appropriate conspicuousness, the specification provides as examples of nodes eligible for selection as P_j and P_k "nodes where the vehicle direction...changes by more than a given predetermined value, or nodes at the intersection of sections oriented in different directions." Col. 10, ll. 15-18. Because "a term can be defined only in a way that comports with the instrument as a whole,"[7] it is clear that "nodes P_j and P_k" cannot be just any nodes, but must instead be nodes that represent something

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[7] *Markman*, 517 U.S. at 389; *cf. Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996) ("[T]he specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.").

geographically significant and identifiable about a road segment, such as a location where a mobile unit can turn onto a new road segment. Accordingly, the "nodes P_j and P_k" that step two of Claim 1 requires to be selected must represent some "conspicuous" aspect of the road segment, specifically such that "nodes P_j and P_k" are "most characteristic in defining a section of the route." Col. 10, ll. 13-14.

As currently construed, the "selecting...nodes P_j and P_k" process also requires dropping the intermediate nodes of a route segment. This, too, derives from the specification, which teaches that in addition to "choosing" nodes P_j and P_k, the method involves "dropping individual points P_i." Col. 10, ll. 12-13. Importantly, "P_i" refers to *all* nodes initially generated and stored as travelled distance data under step one of Claim 1. *See* Col. 9, ll. 51-57. It follows that if the whole collection of travelled distance data is a series of nodes P_i, and the only nodes "select[ed]" for storage as "section data" are the conspicuous "nodes P_j and P_k," then all nodes that are not selected as "nodes P_j and P_k" must remain nodes P_i. And if nodes P_i are not stored—and Claim 1's plain language specifies that only section data defined by "nodes P_j and P_k" are stored—then something other than storage must happen to the remaining nodes P_i. Per the specification, the "something else" is dropping.[8] Col. 10, ll. 12-13.

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[8] It is important to note precisely what is meant by "dropping." This term should not be understood as requiring the method to "delete" these nodes. Rather, a node is *dropped* whenever it is *not* selected for storage as section data pursuant to Claim 1. Claim 1's plain language calls for storing "section data," and Claim 1's plain language further explains that "section data" is generated by selecting "nodes P_j and P_k." In the ordinary sense of the word—and there is no suggestion that a specialized technical understanding applies—to "select" is to single out, as for a preference. Thus, to say that nodes P_i that do not qualify as "nodes P_j and P_k" are dropped is simply to say that these nodes P_i are not selected. And if not selected as section data, such nodes cannot be stored as section data. It is worth noting, however, that such nodes could be stored as travelled distance data pursuant to step one of Claim 1.

To be sure, there is a plausible argument that "dropping individual points P_i" does not require dropping *all* nodes P_i. But beyond the fact that to "select" suggests that "nodes P_j and P_k" are to be picked out as special to the exclusion of non-qualifying nodes, the '836 patent's attached figures reinforce the important conclusion that *only* "nodes P_j and P_k" can be selected for storage. Figure 3, for instance, represents a road network with nodes 1 to 16 representing road intersections, *i.e.*, "nodes P_j and P_k" defining road sections. *See* Col. 7, ll. 61-63. And, according to the specification, the stored "existing data material" for subsequent use is "the road geometry according to FIG. 3." Col. 13, ll. 26-30. Thus, the specification contemplates that the method is designed to cull the total pool of nodes down to just "nodes P_j and P_k" for practical use.[9] In sum, step two of Claim 1, by its plain and ordinary language and in light of the specification, requires that those inconspicuous nodes P_i that are not selected as "nodes P_j and P_k" should not become part of the section data.

It is worth noting that in related German litigation in which the licensee of the '836 patent's European counterpart alleged infringement by TomTom devices, a three-judge panel arrived at essentially the same conclusion reached here. Specifically, that court concluded that the selection of all nodes P_i as "nodes P_j and P_k"—which Dr. Adolph seemingly suggests is the

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[9] The conclusion reached here, in addition to finding support in the claim language and intrinsic evidence, is also most consistent with the overall spirit of the '836 patent. That is, throughout the specification Dr. Adolph makes it clear that one of the central goals of the '836 patent is to reduce the total amount of data necessary to generate the desired road network data. *See, e.g.*, Col. 4, l. 6 ("[t]o avoid unnecessary overburdening [of] the storage device"); col. 4, ll. 29-30 ("to keep the required storage capacity of the central computer to a minimum"); col. 5, ll. 43-44 ("[a] further measure to reduce the requirements of storage capacity"); col. 10, ll. 28-29 ("section data [are] compacted in comparison to the total number of nodes P_i."). A construction that reads Claim 1 as reducing the total pool of data stored as section data to the lowest possible amount—only those points that represent conspicuous aspects of a road segment—effectuates the goal of creating a method for generating road network data that is elegant in the mathematical sense, *i.e.*, surprisingly simple yet effective.

correct reading[10]—would be inconsistent with the "selecting" language and inconsistent with the patent's purpose of minimizing the data necessary for generation and storage. *See* Doc. 201, Ex. 6, at 20. To be sure, the German litigation concerning the '836 patent's European counterpart commands no outcome in this case inasmuch as the parties and the law differ. *Cf. Medtronic, Inc. v. Daig Corp.*, 789 F.2d 903, 907-08 (Fed. Cir. 1986) (rejecting an argument to adopt a German tribunal's conclusion as to obviousness). But where, as here, application of United States patent principles points to an outcome fully consistent with an outcome reached in a reasoned decision addressing comparable issues, the foreign decision, at the very least, gives some indication that the ultimate conclusion reached here has a foundation.

Accordingly, the construction of the "selecting" clause reached in the initial *Markman* Order will remain unchanged. The plain language of Claim 1 suggests that "nodes P_j and P_k" must be selected from a broader pool of nodes P_i. The specification suggests that this is accomplished by selecting *only* certain conspicuous nodes to the exclusion of other nodes that, although perhaps characteristic of a road segment, are not *most* characteristic of that segment. Importantly, the portion of the specification discussing the relevant selecting step of the method does not contain the typical language indicating that the discussion is merely illustrative. For instance, there is no indication that the discussion is how section data "may" be generated.[11] And there are other indicia that the "selection" clause ought to be understood narrowly as well: the specification's focus on reducing the total amount of data necessary to generate outputs and the

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[10] *See, e.g.,* Doc. 260, at 13, Figure 2.

[11] To be sure, there is a reference to how a "typical working sequence" of the *devices* might operate. Col. 9, l. 45. But this language goes more to supporting the conclusion reached in Part II, *supra*, that the method should not be understood as limited to an overly restrictive technological environment. There is no indication that the method itself varies.

specification's use of figures representing known road geometry of which the stored nodes are only the conspicuous nodes.[12] These factors, taken together, point persuasively to the conclusion that the patentee's intent in the '836 patent was that *only* certain conspicuous nodes would be selected from the pool of nodes P_i for inclusion in the section data as "nodes P_j and P_k."

Finally, the current construction of the phrase "selecting...nodes P_j and P_k" requires that "the end of one section is the start of the next section." This portion of the construction has its roots in the prosecution history. As previously explained:

> To overcome a prior art rejection, Dr. Adolph argued during the prosecution that "additional sections are stored in a contiguous fashion in order to store a route connecting the initial starting point of the vehicle to the final destination." Storing sections not connected to one another would not store a route connecting the initial starting point of the vehicle to the final destination, as required by the patent.

TomTom, 56 F. Supp. 3d at 784.

Despite the foregoing analysis, despite the fact that the above referenced construction of the "selecting" clause was neither appealed to nor directly addressed by the Federal Circuit,[13] and despite the fact that Dr. Adolph did not move to reconsider the above referenced

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[12] Moreover, it is worth noting that the specification describes "[t]he procedure"—rather than *a* procedure—for updating and merging data as using the "existing data material" described in Figure 3, in which the only remaining nodes are those at intersections. *See* Col. 13, ll. 9-34. This language suggests that *the* procedure described is limited to using only the stored data as represented in the figures, namely the conspicuous nodes. This, in turn, suggests that the nodes eligible for storage as section data are a select few from among the multitude of nodes P_i.

[13] *See generally TomTom*, 790 F.3d 1315 (limiting review to the constructions of "method for generating and updating data," "destination tracking system of at least one mobile unit," "node," and "storing section data/section data file in the storage device"). *But see also* Stipulation for Entry of Final Judgment (Doc. 232), ¶ 18 (reserving the right to appeal "other rulings...including the Court's claim construction ruling relating to other terms found in the asserted claims of the '836 patent").

construction of the "selecting" clause,[14] Dr. Adolph nonetheless argues at the summary judgment stage that a new construction of the "selecting" clause is necessary.[15] Specifically, Dr. Adolph argues that because the Federal Circuit construed "node" to mean "geographic location," the correct construction of the "selecting" clause is "selecting, from the traveled distance data, geographic locations P_j and P_k, whereby the end of one section is the start of the next section."[16] Def't Opp. at 25. Because Dr. Adolph's proposed construction conflates the general definition of "node" with the more specific meaning of "nodes P_j and P_k," and because Dr. Adolph's proposed construction further ignores the significance of dropping nodes P_i, his argument must be rejected.

For the reasons stated *supra*, the intrinsic evidence points persuasively to retaining the current construction of the "selecting" clause. Moreover, nothing in the Federal Circuit's opinion revising the construction of "node" casts any doubt on the original construction of the "selecting" clause. To be sure, there can be no dispute that, as used in the "selecting" clause, "nodes P_j and P_k" means "geographic locations P_j and P_k." But the core of the construction of the "selecting" clause addresses what distinguishes "nodes P_j and P_k" from nodes P_i. The distinction is clear; "nodes P_j and P_k" are the conspicuous geographic locations that are "most characteristic" of a road segment and, as a result, are selected for storage as section data. Any geographic location

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[14] *See* Def't Mot. for Partial Reconsideration (Doc. 203) (moving for reconsideration only of the construction of "node" and "destination tracking system of at least one mobile unit").

[15] That the parties are now re-litigating claim construction after an initial claim construction appeal reflects that the initial appeal was incomplete or premature, in essence an interlocutory appeal masquerading as an appeal from a final and mature judgment. These circumstances counsel in favor of trial courts' ensuring that stipulations of dismissal cover *all* of the grounds for non-infringement warranted by the *Markman* determinations.

[16] Dr. Adolph contests the construction of the last sub-phrase, "whereby the end of one section is the start of the next section." Def't Opp. at 25 n.78. For the reasons stated *infra*, this portion of the construction is not independently dispositive of TomTom's instant motion.

that is not a "node[] P_j and P_k" remains a node P_i. Because the claim language does not call for nodes P_i to be "selected," and because the specification strongly indicates that such nodes should *not* be selected, nodes P_i are not part of the section data that is "generat[ed]," and, as a result, such nodes are not "stor[ed]…in the storage device."

Dr. Adolph's proposed construction, which simply requires "selecting… geographic locations P_j and P_k" turns a blind eye to the specification and, in essence, erases from the claimed method the selection step. Simply put, Dr. Adolph's proposal removes from the claim construction any indication as to what distinguishes "nodes P_j and P_k" from nodes P_i, but this distinction cuts to the heart of the parties' dispute. Indeed, under Dr. Adolph's proposed construction, seemingly any set of two connected nodes P_i can be selected as "nodes P_j and P_k." The current claim construction contemplates a methodical process by which nodes P_i are analyzed and only "nodes P_j and P_k" are selected on the basis of conspicuous aspects that make them "most characteristic" of a road segment, consistent with the '836 patent's goal of effectively generating road network data with as little input data as possible. In stark contrast, Dr. Adolph's proposed construction requires nothing more than (i) selecting at least two connected nodes and (ii) possibly dropping some nodes that are not characteristic of a road segment. *See* Def't Opp. at 26 ("And just as the first selected location value corresponds to the first node P_j of a section, at least one of the subsequent selected location values corresponds to the second node P_k of a section."); Tr. at 62 (under Dr. Adolph's construction, "we are dropping non-characteristic intermediate nodes").

It is worth noting, moreover, that if Dr. Adolph's construction is correct, there is good reason to doubt the validity of the '836 patent under 35 U.S.C. § 101 or 35 U.S.C. § 102.[17] Indeed, TomTom previously moved for judgment on the pleadings on the ground that the '836 patent is invalid as drawn to an abstract idea without an inventive concept, thus falling beyond the scope of patentable subject matter under *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014). In opposition to this motion, Dr. Adolph's counsel specifically argued that the "selecting" clause is "the most important and detailed part of the claim." Transcript of Motion for Judgment on the Pleadings Hearing, at 17:19-20 (Sept. 25, 2015). Counsel for Dr. Adolph went on to explain that the "selecting" clause involves "selecting specific data points from the collected data" by "extracting the starting point and the ending point of [the] sections" and "saving those in a section data file." *Id.* 17:22-25. Dr. Adolph cannot have it both ways; the '836 patent cannot cover the selection of all characteristic nodes of a road section when doing so is convenient to survive summary judgment, but focus on "specific" nodes that define the starting and ending points of a road section when doing so is convenient to survive an *Alice* motion. Under Dr. Adolph's present infringement theory it is difficult to see anything particularly "detailed" about the "selecting" clause; if every characteristic node P_i generated as travelled distance data gets selected, then step two is not doing much work all. Thus, Dr. Adolph's

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[17] The analysis here is not an invocation of the familiar axiom that claims ought to be construed to sustain their validity. *See Phillips*, 415 F.3d at 1328 (calling this axiom "a doctrine of limited utility"). Nor is this to say that the '836 patent is necessarily valid under the construction currently ascribed to the "selecting" clause. Indeed, as previously noted in this litigation, the question of the '836 patent's validity under § 101 will remain unaddressed until the Rule 50, Fed. R. Civ. P., stage of the proceedings, if reaching the issue becomes necessary at all. *See TomTom v. Adolph*, No. 12-cv-528 (E.D. Va. Sept. 28, 2015) (Order) (Doc. 264). Accordingly, this Memorandum Opinion does not reach or decide the question of the '836 patent's validity under § 101.

representations at the *Alice* hearing reinforce—but are by no means necessary to reaching—the conclusion that the "selecting" clause envisions more than what Dr. Adolph now suggests with regard to separating the wheat ("nodes P_j and P_k") from the chaff (nodes P_i) for purposes of storage as section data. And this § 101 analysis does not even touch on TomTom's suggestion that Dr. Adolph's infringement theory runs contrary to the patent's description of prior art. P. Reply at 8.

In sum, there is no reason to believe that the Federal Circuit's reconstruction of "node" alters the "selecting" clause to the drastic extent that Dr. Adolph suggests. What is more, a careful reevaluation of the relevant materials reconfirms that the current construction is consistent with the claim language read in light of the intrinsic evidence. Therefore, analysis properly proceeds to assessing the uncontested record facts in light of the accepted construction.

B.

The undisputed record facts show that TomTom's location tracking software, in the course of generating and storing trip data, stores more than just qualifying "nodes P_j and P_k." In light of the claim construction, this is dispositive. Indeed, it is well known that the "cases in which claim construction is not dispositive" are "few." *Phillips*, 415 F.3d at 1334 (Mayer, J., dissenting). In fact, Dr. Adolph concedes that his evidence only shows that "certain intermediate data points" are dropped, Def't Opp. at 28, a concession that explains why Dr. Adolph now argues for a drastically altered construction. In spite of this tacit acknowledgement that the record evidence does not support a finding of infringement of Claim 1 as construed, analysis of Dr. Adolph's arguments is appropriate to illustrate why each piece of evidence on which Dr. Adolph relies is insufficient to create a triable issue of fact in light of the relevant claim construction reached here.

Dr. Adolph identifies three undisputed characteristics of TomTom's location tracking software that, in Dr. Adolph's view, constitute performance of step two of Claim 1.[18] First, when TomTom software begins collecting data, the software first attempts to obtain a start location and start time by collecting two valid location values; during this process, invalid values will be dropped. Second, when a mobile unit is stationary for more than ten data readings, TomTom's software will stop storing the stationary nodes beyond ten, close the data file, and not open a new data file until the mobile unit begins moving again. Third, and relatedly, when TomTom's software obtains ten bad data readings in a row, TomTom's software will stop storing the bad nodes beyond ten, close the data file, and not open a new data file until the software begins obtaining valid data again. Each argument is addressed in turn.[19]

1.

When TomTom's location tracking software begins recording data, the software's first task is to obtain a start location value and a start time value. This process requires obtaining two valid readings: (i) a starting latitude, starting longitude, and starting altitude, and (ii) a second value that constitutes a delta latitude, delta longitude, and delta altitude. Once the TomTom software obtains these preliminary values, then and only then does the TomTom software store these values in the long-term storage data record (as a starting point and "delta value"), with subsequent data recorded in that data file as "delta-delta values." While attempting to obtain the

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[18] In Dr. Adolph's opposition brief, he cites these three characteristics as mere "examples," suggesting other characteristics might also infringe. Def't Opp. at 27-28. At oral argument, however, Dr. Adolph's counsel was twice asked to state directly what Dr. Adolph contends constitutes infringement of step two of Claim 1, and both times Dr. Adolph rested on these examples. *See* Tr. at 23, 55-56. Therefore, consistent with Rule 56(c)(3), Fed. R. Civ. P., consideration will focus on "only the cited materials."

[19] For purposes of resolving the instant motion, each of Dr. Adolph's arguments will be analyzed in the light most favorable to Dr. Adolph, as he is the non-moving party.

valid starting values that trigger the opening of the data record, TomTom's software will discard invalid data. For example, if the TomTom software obtains a valid data point at the beginning of a trip (P1) and then obtains an invalid data point (P2), the TomTom software will drop both P1 and P2. Thereafter, if the TomTom software obtains another valid data point (P3) followed by yet another valid data point (P4), P3 will become the starting value in the data file, P4 will become the delta value in the data file, and a subsequent valid data point P5 will become the first of the delta-delta values in the data file. According to Dr. Adolph, in the preceding example the selection of P3 and the discarding of P1 and P2 constitutes performance of the claimed method consistent with the construction of the "selecting" clause.

This argument is inconsistent with what Claim 1 requires. As construed, the second step of Claim 1 requires "selecting from the traveled distance data, the nodes that are most characteristic of a road segment and dropping the intermediate nodes of that segment, whereby the end of one section is the start of the next section." Even assuming that every data point—even if invalid—constitutes travelled distance data,[20] TomTom's software does not select and drop consistent with Claim 1. If P1 is a valid data point and part of the travelled distance data, then P1 is a node P_i. Moreover, P1 is the first node P_i recorded on a particular route. Thus, P1 is one of the nodes that is *most characteristic* of the road segment—the starting point defining the section. When P1 is discarded alongside the invalid P2, the TomTom software is discarding one of the nodes that Claim 1 requires to be selected. This remains true even if P1 is the invalid node

[20] There does appear to be a material dispute of fact between the parties as to what constitutes "travelled distance data" for purposes of the first step of Claim 1. Of course, even if this dispute is resolved in Dr. Adolph's favor, as assumed here for purposes of summary judgment, TomTom is still entitled to summary judgment if the second step of the method is not performed. *See Lucent Techs.*, 580 F.3d at 1317 ("To infringe a method claim, a person must have practiced all steps of the claimed method.").

that triggers the discarding; so long as P1 is a node P_i in the travelled distance data from which section data can be generated, P1 is always a starting point node that requires selection as "most characteristic of a road segment." Accordingly, this particular characteristic of TomTom's location tracking software never practices the second step of Claim 1 because any time the first node P_i is discarded, the TomTom software fails to select a node that is "most characteristic" of a road segment and instead selects some other node that is perhaps characteristic but not *most* characteristic. And, of course, nothing about this characteristic indicates that the TomTom software is dropping all intermediate nodes of a section, as the claim construction further requires as a necessary aspect of step two of Claim 1.

2.

Once TomTom's location tracking software has obtained the initial two valid readings and the software begins recording values in the data file, some but not all subsequent location values will be selected for storage as delta-delta values. One example of location values that are not selected—which Dr. Adolph argues satisfies the second step of Claim 1—are location values representing a stationary mobile unit. Specifically, if a mobile unit is stationary for a sufficient length of time (ten seconds in current versions of TomTom devices), TomTom's software will stop selecting duplicative location values after the first ten. In other words, when a mobile unit is stopped at a stoplight for thirty seconds, the TomTom software will continue taking location readings every second, but after the first ten duplicative readings the software will close the data file and the next twenty stationary readings will not be selected for storage. This failure to select the twenty duplicative readings, in Dr. Adolph's view, constitutes the "dropping" of nodes.

At oral argument, the parties explored this precise hypothetical of stopping at a stoplight. Specifically, the parties were confronted with a scenario in which a car using a TomTom device

progressed down a straight stretch of road, collecting nodes at P1, P2, P3, P4, and P5. At P6, the car reaches a stoplight and stops in excess of ten seconds. While stopped, the TomTom software will continue recording nodes P_i, and at P15 (the tenth location reading identical to P6), the TomTom software will close the data file and stop selecting values for storage until the mobile unit begins moving again. Dr. Adolph does not dispute that this route segment represented by P1 to P15 constitutes a "section," Tr. at 60-61, and he further contends that the intermediate nodes of this section do not need to be dropped. *See id.* at 62.

This argument has two dispositive flaws. As explained *supra*, the claimed method notes that all nodes, when collected as travelled distance data, constitute nodes P_i. Of the nodes P_i, only the "most characteristic" nodes are selected as "nodes P_j and P_k," and "nodes P_j and P_k" are the nodes that "define contiguous sections P_jP_k" as required by the plain language of Claim 1. Accordingly, in the above hypothetical if P1-P15 represents a section, as Dr. Adolph concedes, then P1 is node P_j and P15 is node P_k. All remaining nodes that are not selected as "nodes P_j and P_k" remain nodes P_i, and individual nodes P_i are dropped, per the specification's explanation of the method. *See* Col. 10, ll. 8-14. By not dropping the individual nodes P_i as required by the claim construction, the TomTom software does not perform the claimed method.

To illustrate the second flaw, regarding selection, imagine that a mobile unit using a TomTom device simply breaks down in the middle of a stretch of road at P6. The TomTom software will continue to take location readings until P15, at which point the data file will close. And, as above, the data will represent a section P_jP_k representing P1-P15, wherein P1 is node P_j and P15 is node P_k. In this scenario, there is nothing "conspicuous" about P15, which has been "selected" as node P_k. That is, the mobile unit has not changed direction by more than a given predetermined value, nor does the road segment intersect with another road segment at P15.

Simply put, P15 is just a point on the road; P15 is no more or less conspicuous and no more or less characteristic than P14, P6, P2, or any other intermediate point. Yet, to perform the claimed method, any node selected as node P_k must be "most characteristic in defining a section of the route." Col. 10, ll. 13-14. Here, however, P15 is simply a non-conspicuous point at which the TomTom software decides to stop saving location values. In other words, selecting P15 as node P_k is not consistent with the claimed method because the choice to select P15 as opposed to P14 (or continuing on to P16, P17, P18, and so forth) is completely arbitrary. By following an arbitrary selection criterion instead of methodically identifying for selection a conspicuous point most characteristic of a road segment, the TomTom software is not performing the second step of Claim 1. This is true even where, as in the stoplight example, the selected point might otherwise qualify as a node P_k. To clarify, stoplights are most common at intersections, and the intersection of road segments are clearly "conspicuous" points that qualify as "most characteristic" under the specification's explanation of the claimed method. But just because following the claimed method and following an arbitrary rule (*i.e.*, "selecting" the tenth duplicative stationary location value) might, in some instances, yield the same outcome—here, selecting a qualifying node as node P_k—does not mean the claimed method is infringed. To guess correctly the length of a given hypotenuse would not infringe Pythagorus's "method for generating data about the length of sides of a right triangle."[21] So too does arbitrarily picking the tenth duplicative value as a stopping point not infringe a method that requires identifying and selecting a specific point.

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[21] To be sure, a mathematical formula is an abstract idea that cannot be patented. But it is not yet pellucid that the '836 patent does not suffer the same infirmity. *See supra*, n.17.

3.

Dr. Adolph's final argument is closely related to his second. Specifically, Dr. Adolph notes that, similar to when a mobile unit is stationary for ten location readings, TomTom software will not select values for storage after ten invalid readings. In other words, when a TomTom device loses its GPS signal, the location tracking software will store nodes as bad data and the bad data nodes will not be selected for storage in the data file.

Analysis of this argument tracks the analysis of the stationary mobile unit argument to a substantial degree. To illustrate, a mobile unit moving along a single straight stretch of road using a TomTom device might (i) record P1, P2, P3, and P4, (ii) lose a GPS signal at P5, and (iii) regain the GPS signal at P20 before (iv) ending the trip at the end of the road at P25. In this scenario, P1-P14 represents a section P_jP_k and P20-P25 likewise represents a section P_jP_k. As with the previous scenario, P14 becomes node P_k not because P14 is more characteristic of the road segment than other nodes or conspicuous in any way; rather, P14 becomes node P_k because TomTom's software arbitrarily elects to stop recording and close the data file on the tenth bad data reading.[22] Thus, as noted in the previous example, when a TomTom device loses its GPS signal it will "select" as node P_k (i) a location value that sometimes does not qualify as "conspicuous" or "most characteristic" as contemplated by the claimed method (*e.g.*, a point in the middle of a straight stretch of road) or (ii) a location value that *is* conspicuous or most characteristic, but only as a matter of serendipity (*e.g.*, when the tenth bad data reading happens to occur at a point when the mobile unit turns onto a new road segment). As such, to the extent the loss of a GPS signal results in "selection" of a node P_k, the selection is either inconsistent

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[22] *See* Tr. at 57 ("So, after ten bad data points in a row, [a TomTom device] will close that file, and it will not open a new file unless and until it starts to see, at least, two good data points again.").

with the claimed method or the result of an arbitrary selection procedure rather than the methodical approach claimed. And moreover, as above, under the instant scenario TomTom's software does not drop *all* intermediate nodes of the section, even though all nodes that are not "nodes P_j and P_k" remain nodes P_i, and individual nodes P_i do not qualify for selection, per the specification's explanation of the claimed method. *See* Col. 10, ll. 8-14.

This final argument has a further distinct flaw. As currently construed, the claimed method requires that "the end of one section" must be "the start of the next section." In the instant scenario, the loss of a GPS signal results in the generation of two sections P_jP_k, one represented by P1-P14 and the other represented by P20-P25. It is abundantly evident that P14 is not contiguous to P20 and, as a result, the end of section P1-P14 is not the start of P20-P25. Accordingly, the TomTom software's response to the loss of a GPS signal cannot constitute performance of the claimed method because the TomTom software's response does not comport with the method's requirement that generated sections be contiguous.

C.

In sum, Dr. Adolph's three cited examples of how TomTom's location tracking software "selects" and "drops" nodes consistent with step two of Claim 1 all fail in light of the applicable claim construction. Because step two of Claim 1 is properly read to limit the nodes eligible for storage as section data, and because Dr. Adolph cannot prove that TomTom complies with this limitation, summary judgment of non-infringement in favor of TomTom is appropriate.[23]

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[23] In opposing summary judgment, Dr. Adolph makes a brief reference to an alternative theory of infringement under the doctrine of equivalents. Dr. Adolph's brief makes no specific reference or citation to expert testimony on the doctrine of equivalents with respect to the second step of Claim 1. Instead, Dr. Adolph's argument references a disputed issue on which Dr. Adolph concedes that TomTom has not sought summary judgment, namely whether TomTom's generated data is equivalent to "section data." Def't Opp. at 28-29. Accordingly, Dr. Adolph has

IV.

For the reasons herein stated, Dr. Adolph has not produced evidence that TomTom's location tracking software performs the second step of the only independent claim of the '836 patent. Specifically, the undisputed record facts reflect that TomTom's contested software does not select the appropriate nodes for storage as section data to the exclusion of other nodes that do not qualify for selection and storage as section data, as required by step two of Claim 1 of the '836 patent. Because Dr. Adolph has not presented a triable issue of fact that TomTom's software performs each step of the claimed method, summary judgment of non-infringement must be entered in favor of TomTom.

An appropriate order will issue.

Alexandria, Virginia
November 24, 2015

/s/
T. S. Ellis, III
United States District Judge

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not pointed to expert evidence creating a triable issue of fact sufficient to survive summary judgment of non-infringement on the grounds reached here, *i.e.*, that TomTom does not perform "selection" as used in step two of Claim 1. Moreover, there is a significant dispute between the parties as to whether Dr. Adolph's expert's testimony on the doctrine of equivalents is even admissible, as TomTom claims that the expert testimony is wholly conclusory. *See* Doc. 317 (TomTom's motion ***in limine*** to preclude Dr. Adolph from arguing the doctrine of equivalents).